

Atty. Docket No. 006629 USA D 01/PDC/WF/OR (Q77224)
PATENT APPLICATION

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/784,771

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REMARKS

Claims 5-16 and 18-30 are all the claims pending in the application.

I. Indication of Allowability

Applicant thanks the Examiner for indicating that claims 5, 7, 8, 11, 12, 19-21, 24, 27, and 29 would be allowable if rewritten in independent form. Claim 5 has been so rewritten, thereby making claim 5 allowable. With respect to the remaining claims, Applicant respectfully traverses the rejections of their base claims, as detailed below.

II. Claims Objections

Claim 19 stands objected to for failing to have antecedent basis for the term "annular." The term has been deleted from the claim, thereby overcoming this objection.

III. Claims Rejections Under 35 USC 112

Claim 20 stands rejected as being indefinite for failing to particularly recite which beam splitter the beam is passed through. Claim 20 has been amended to specifically identify the passage of the beam, thereby overcoming this rejection.

IV. Claims Rejection Under 35 USC 102 and 103

Claims 1-4 stand rejected as being anticipated by Shiraishi. Claims 1-4 have been canceled, thereby making this rejection moot.

Claims 1-3, 6, 15 and 16 stand rejected as being anticipated by Ando; claims 9, 13 and 14 stand rejected as being anticipated by Hill; claims 18, 22, 23, 25, 26 and 30 stand rejected as being anticipated by Nakasuji; Claim 10 stand rejected as being unpatentable over Hill in view of Tanitsu; and claim 28 stand rejected as being unpatentable over Nakasuji in view of Tanitsu.

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These rejections are respectfully traversed for the reasons provided below, arranged in order of ascending claims.

Claim 6: Applicant respectfully submits that Ando fails to anticipate, or even make obvious, the subject matter claimed in claim 6. Notably, claim 6 recites that a light source outputs an annular beam, a scanner scans the annular beam to provide a single scanned annular beam, and a beam splitter produces multiple annular beams from the single scanned annular beam. No such system is disclosed in Ando. The cited passages to Ando, and specifically the embodiment depicted in Figure 11a of Ando, disclose converting a single circular beam into a beam having concentric bands of phase difference in the beam. Ando implies that this arrangement can be scanned. However, such a disclosure does not anticipate nor makes obvious the claimed system wherein a first annular beam is generated, the annular beam is scanned, and then the scanned annular beam is split into several annular beams.

Claim 9: Applicant respectfully submits that Hill fails to anticipate, or even make obvious, the subject matter claimed in claim 9. Notably, claim 9 recites a light source outputting a single beam, a scanner that scans the beam to provide a single scanned beam, and a beam splitter that produces multiple scanned beams from the single scanned beam. No such system is disclosed in Hill. Notably, as shown in the cited Figures and passages, the first operation that Hill performs on the beam is to split it. Of course, this is elementary to interferometry, so that one beam can function as reference beam while the other as measurement beam. Then, either beam can be manipulated. Therefore, Hill does not teach or suggest to first scan the beam and only then split it to multiple scanned beams. Moreover, Hill does not teach scanning at all. Hill

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discloses beam steering assembly (12), but this assembly does not scan the beam. Rather, the steering assembly directs the beams onto the object mirror 66 so as to reflect back from the object mirror and cause phase change between the measuring and reference beams. The phase difference correlates to the relative angle between the assembly 12 and the object mirror 66. By moving the mirror 60 of the steering assembly 12, the beams can be made to hit the object mirror at 90 degrees, and the motion of the mirror 60 can be measured to determine the angular position of the object mirror 66. Therefore, nowhere does Hill teach scanning any of the beams.¹

Claim 10 depends from allowable claim 9 and is, therefore, allowable by definition.

Claim 13: Applicant respectfully submits that Hill fails to anticipate, or even make obvious, the subject matter claimed in claim 13. Notably, claim 13 recites a light source outputting a beam, a scanner that scans the beam across a target which is moved in one direction, and wherein the beam is scanned in a direction that is not perpendicular to the target motion direction. No such system is disclosed in Hill. Notably, as discussed above with respect to claim 9, Hill does not disclose scanning the beams. Hill's steering assembly does not scan the beam, but simply directs the beam onto the target in a desired angular direction. The steering mechanism is used to modify the angular direction as necessary, but is never used for scanning.

Claim 14 depends from allowable claim 13 and is consequently allowable by definition.

¹ To be sure, Hill shows a beam writing system in Figure 10, which includes a scanning of the writing beam. However, this is an example of a device which can utilize the system of Hill to ensure that the article 1616 to be written to is perpendicular to the writing beam 1612. The system of Figure 10 does not use multiple beams and does not scan the beam in a direction not perpendicular to the motion of the object 1616.

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Claim 15: Applicant respectfully submits that Ando fails to anticipate, or even make obvious, the subject matter claimed in claim 15. Notably, claim 15 recites a confocal optical arrangement. As explained in the subject Application, the confocal optical arrangement includes a pinhole to thereby remove any captured light that was not emanating from the focal plane, to thereby narrow the depth of focus (see, e.g., paragraphs 0084-0087). No such disclosure or suggestion can be found in Ando.

Claim 16 depends from allowable claim 15 and is therefore allowable by definition.

Claim 18: Applicant respectfully submits that Nakasuji fails to anticipate, or even make obvious, the subject matter claimed in claim 18. Claim 18 recites, among others, a light source providing a light beam through a pupil. In the office action, it is alleged that Nakasuji's element 1 anticipates the light source providing a light beam through a pupil. However, this is clearly not the case. Element 1 is clearly and explicitly described in Nakasuji as being a charged particle source, such as an electron gun. As is well known, what is referenced by character 1 in Nakasuji is a particle source tip and an extractor electrode, not a light source and a pupil.

Additionally, claim 18 recites focusing a light onto a bright field channel detector. No such element is disclosed by Nakasuji, as it is rather meaningless to talk about bright field image in the context of charged particle optics. As is well known, two main types of images are formed in charged particle optics – scattered particle image and secondary particle image – both formed by directing particles onto particle detectors. Nakasuji forms charged particle images and, therefore, does not direct light onto a bright field channel detector.

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Claims 22, 23, 25, 26 and 30: as with the above discussion regarding claim 18, Nakasuji does not disclose light optics, but rather particle beam optics. Consequently, Nakasuji fails to anticipate any of these claims, as all recite a light source providing a beam of light. Also, as is well known, particle beams behave differently from light beams and, therefore, particle beam optics cannot be readily applied to operate on light beams.

Claim 28 depend from allowable claim 23, and is therefore allowable by definition.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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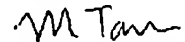
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Date: July 31, 2006

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this AMENDMENT UNDER 37 C.F.R. § 1.111 is being facsimile transmitted to the U.S. Patent and Trademark Office this 31st day of July, 2006.



Mariano Tam